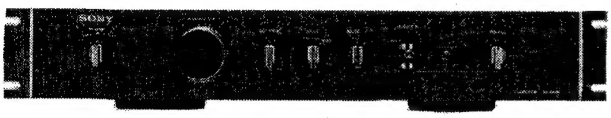
SONY®

STEREO PREAMPLIFIER

TA-E86B



OPERATING INSTRUCTIONS page 2

Before operating the unit, please read this manual thoroughly.
This manual should be retained for future reference.

MODE D'EMPLOI page 12

Avant toute opération, lire attentivement ce mode d'emploi.
Conserver ce manuel pour toute référence ultérieure.

BEDIENUNGSANLEITUNG Seite 22

Vor Inbetriebnahme lesen Sie bitte diese Bedienungsanleitung sorgfältig durch.
Bewahren Sie diese Anleitung zum späteren Nachschlagen gut auf.

English

The TA-E86B preamplifier is a music system component offering superior performance and equipped with simplified circuitry and comprehensive connection facilities.

Special features

The head amplifier includes a first stage LEC* II transistor differential amplifier. A newly developed ultra-low-noise LEC II transistor is the equivalent of ten conventional LEC transistors. This results in an especially high signal-to-noise ratio and superior distortion characteristic of the TA-E86B.

Each of the equalizer amplifier and flat amplifier employs a dc differential amplifier, and by using matched pairs of transistors a considerably better temperature characteristic can be obtained. Direct coupling is used in the negative feedback loop and there are no coupling capacitors that would impair the sound quality.

Each circuit of the right and left channels is individually laid out. This contributes to excellent channel separation.

The TA-E86B employs a copper bus earth line to keep the earth line at almost equal potential, thus helping to reduce the interaction in one channel and between two channels.

Sony has incorporated newly developed attenuator type volume and balance controls in the TA-E86B, providing excellent crosstalk, pulse response, and distortion characteristics. These controls provide an extremely smooth operational feel.

All of the parts have been selected to match each other within close limits. The active components, such as the transistors, etc., have been selected for their closeness of dynamic characteristics.

The TA-E86B, with all conventional front panel appurtenances eliminated, is the ideal preamplifier for the serious audiophile.

TABLE OF CONTENTS

*LEC is abbreviation of Low Emitter Concentration.

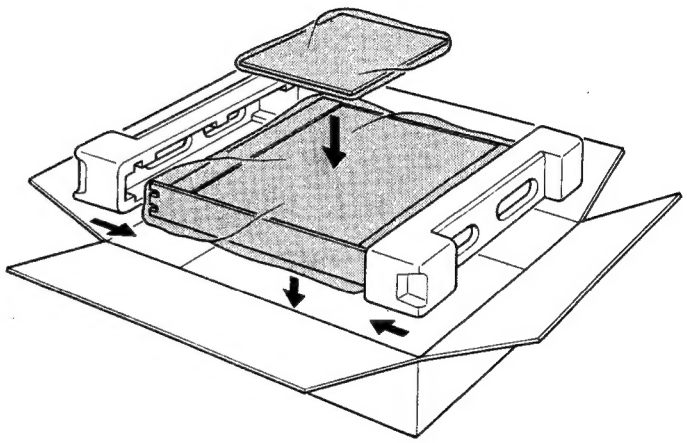
WARNING

- To prevent fire or shock hazard, do not expose the unit to rain or moisture.
- To avoid electrical shock, do not open the cabinet. Refer servicing to qualified personnel only.

UNPACKING

Do not throw away the carton and the associated material; they will come in handy if you ever have to transport or ship your unit. Inspect your TA-E86B immediately after unpacking.
If any sign of damage is found, consult your local Sony dealer.

When shipping the unit for repair work or to another location, the unit should be repacked in the original carton and packing material just as it was originally.



OPERATING VOLTAGE

Before connecting the unit to the power source, check that the operating voltage of your unit is the same as the local power line voltage.
Your amplifier is factory set at either 110, 120, 220 or 240 V ac. When changing its operating voltage, consult nearest Sony service facility.

For the Customers in the United Kingdom

WARNING

This apparatus must be earthed at the terminals in your 3-pin plug as follows:

Important
The wires in this mains lead are coloured in accordance with following code.

Green-and-yellow	Earth (safety earth)
Blue	Neutral
Brown	Live

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured makings identifying the terminals in your plug, proceed as follows:
The wire which is coloured green-and-yellow must be connected to the terminal in the plug which is marked with the letter E or by the safety earth symbol ⏚ or coloured green or green-and-yellow.
The wire which is coloured blue must be connected to the terminal which is marked with the letter N or coloured black. The wire which is coloured brown must be connected to the terminal which is marked with the letter L or coloured red.

PRECAUTIONS

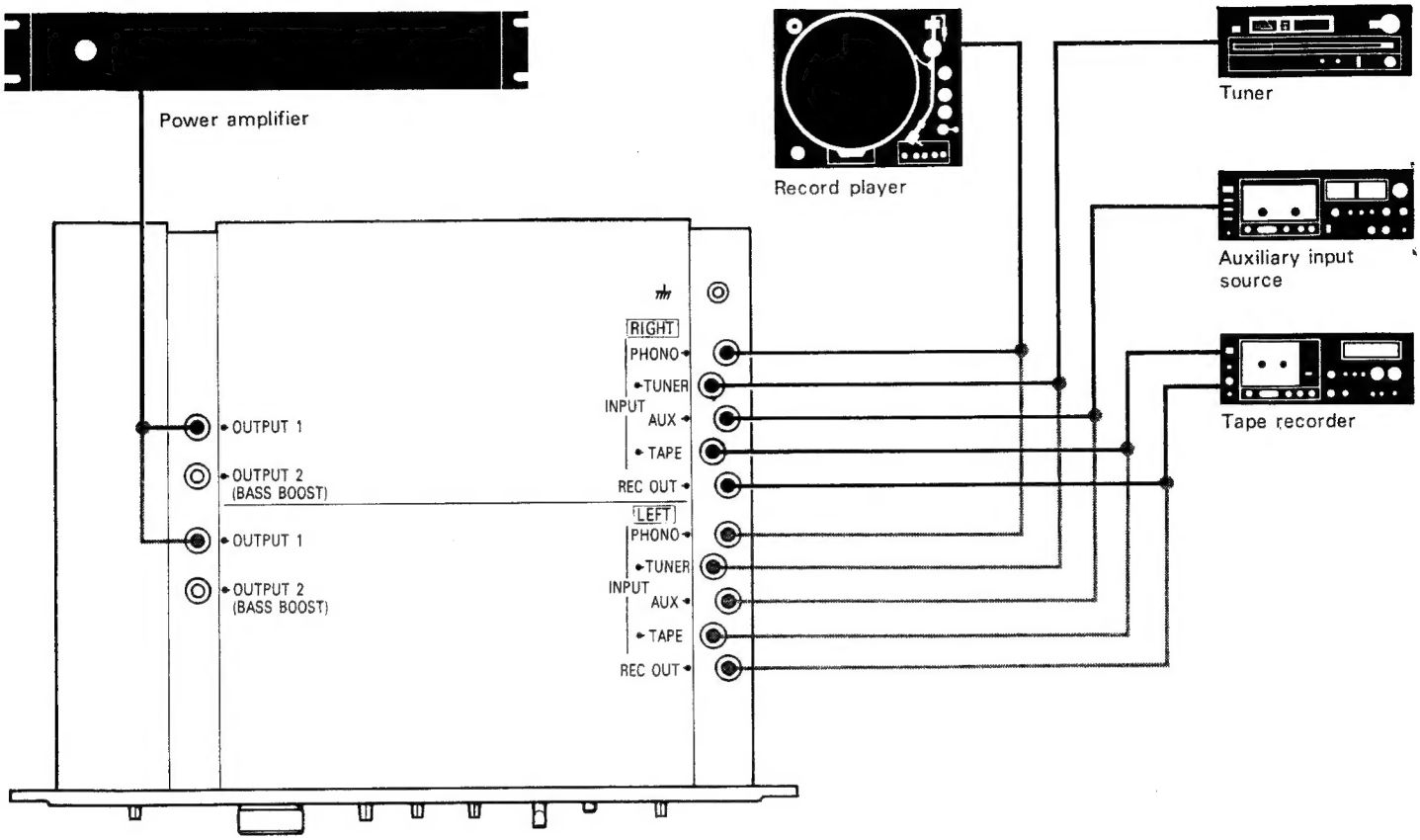
Correct installation and proper operation contribute both to your safety and to the continued trouble-free operation of your TA-E86B. Particular attention should be paid that your installation and operating procedures comply with the following requirements.

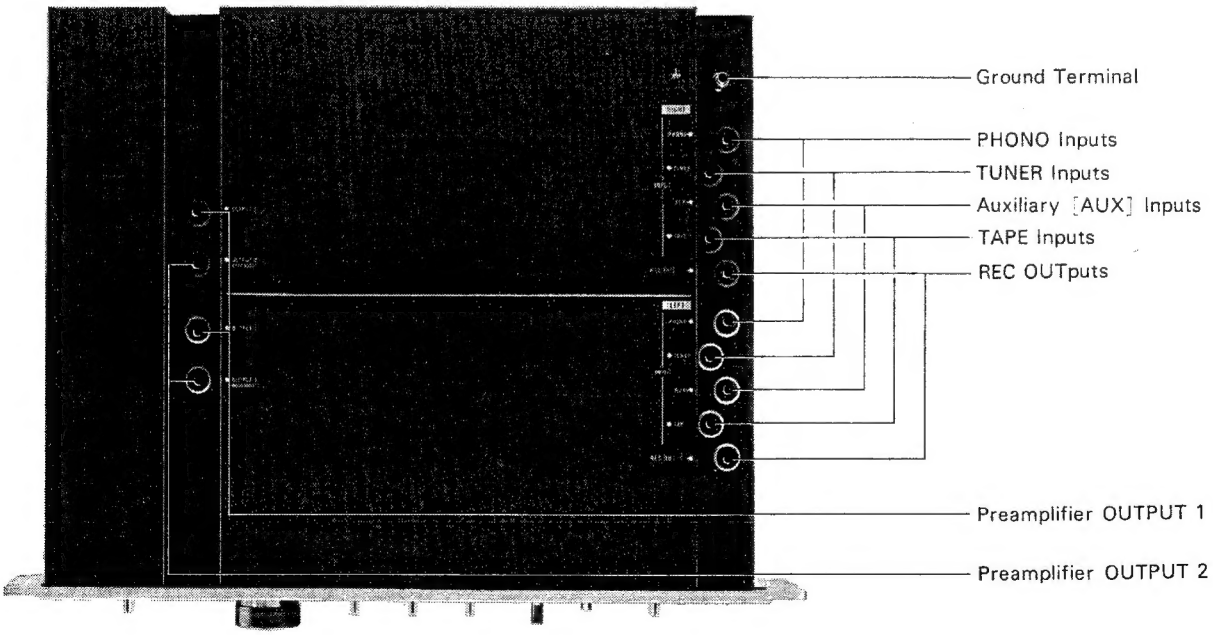
On safety
- Check that the operating voltage of your unit is identical with the voltage of your local power supply.
- Unplug the unit from the wall outlet if it is not to be used for an extended period of time. To disconnect the cord, pull it out by grasping the plug. Never pull the cord itself.

On installation
- Do not install the unit in a location near heat sources such as radiators or air ducts, or in a place subject to direct sunlight, excessive dust, mechanical vibration or shock.
- Good air circulation is essential to prevent internal heat build-up in the unit. Place the unit in the location with adequate air circulation. Do not place the unit on soft surfaces such as a rug.

On operation
- Before making program source connections, be sure to turn the power switch off and unplug the unit.
- When the unit is not used, turn the power off to conserve energy and to extend the useful life of your unit.
- If any problem arises in the operation of this unit, such as no sound from the one or both channels, etc., first follow the procedures suggested in "TROUBLE CHECKS" on page 10. Most problems that arise are the result of a simple misconnection or incorrect operation and can be cleared up easily. If the difficulty still persists, contact your nearest Sony service facility.

CONNECTION DIAGRAM





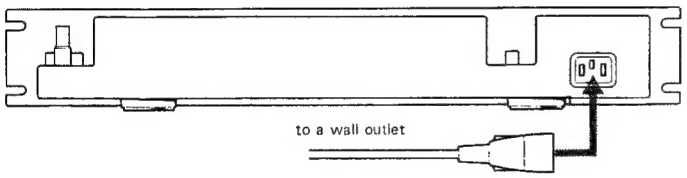
SYSTEM CONNECTIONS

CONNECTION NOTES

● To assure correct matching at the input and output terminals of your audio system, refer to the "SPECIFICATIONS" on page 10, and to the specifications given in the instruction manuals provided with the components you wish to connect to the TA-E86B. Generally the output level of a signal source (phono cartridge, tape recorder, etc.) should be equal to or slightly greater than the sensitivity of the corresponding input. Also the output impedance of a signal source should be considerably lower than the impedance of the corresponding input.
For example, a tape recorder having an output level and impedance of 250 mV and 10 kΩ respectively can be connected to the TA-E86B TAPE inputs which are rated at 150 mV and 50 kΩ.
● For all program source input and output connections, use a low-capacitance type shielded cable. Keep the cables as short as practicable, avoiding horizontal runs. Excessively-long runs over 2 meters (6 feet) tend to reduce the high frequency response, while horizontal runs are susceptible to power line hum pickup.
● The cable connections should be fully inserted into the jacks. A loose connection may cause hum and noise.
● If reconnections are made, be sure to lower all source level controls and turn off the TA-E86B to avoid possible speaker damage.
● When making connections, be sure to connect the red plug of the cable to the RIGHT jack and the remaining one to the LEFT.

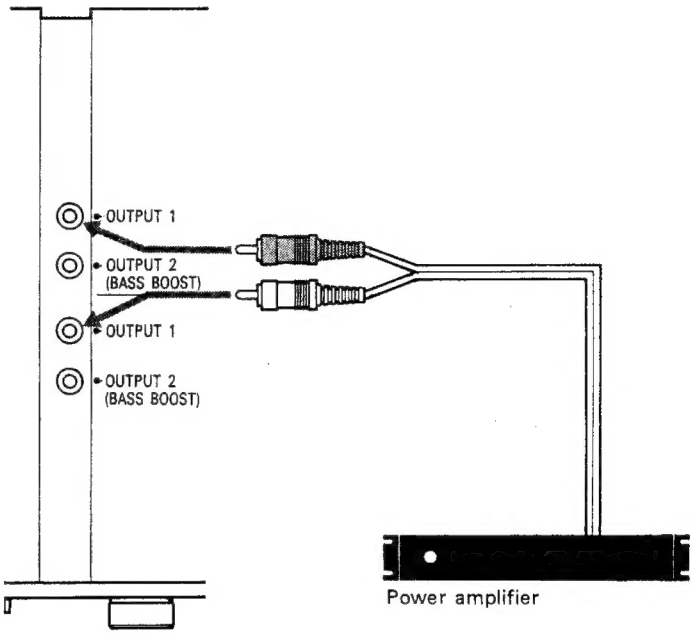
POWER CONNECTION

Before making any form of power connection, make sure the TA-E86B POWER switch is OFF. First plug the ac power cord into the AC INput, then into a wall outlet.



POWER AMPLIFIER CONNECTION

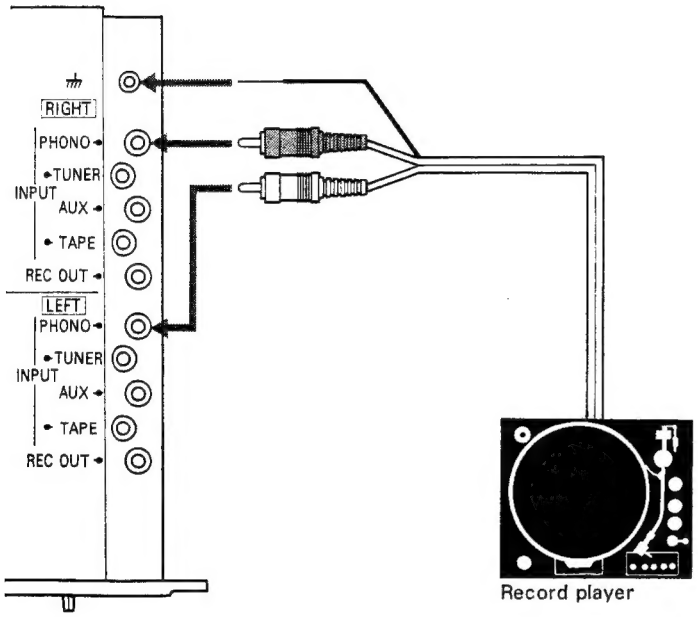
The TA-E86B features two sets of preamplifier outputs: Normally connect the power amplifier to OUTPUT 1, which has a flat response. The OUTPUT 2 connection is useful, for example, with a mini-size speaker system, in that the bass sound is enhanced. The frequency response at OUTPUT 2 is boosted at low frequencies and rolled off at very low frequencies as shown in the operating curve on page 34.
The rated output level of the TA-E86B is 1.5 volts.



	Output voltage	Output impedance
OUTPUT 1	1.5V	100Ω
OUTPUT 2	1.5V	100Ω

RECORD PLAYER CONNECTION

The TA-E86B includes a head amplifier at the PHONO inputs for use with moving-coil cartridges. This head amplifier, having a voltage gain of 26 dB (approx. 20 times amplification), boosts the minute cartridge output to a level suitable for a typical magnetic phono input.
The TA-E86B also includes the PHONO impedance selector to select a proper impedance for the cartridge to be used. For the PHONO impedance selector, see page 9.
After the connection is completed, begin record playing in accordance with the initial operation instructions on page 8. If the reproduced music sounds distorted, use of the LOW FILTER switch may be helpful (see page 9).

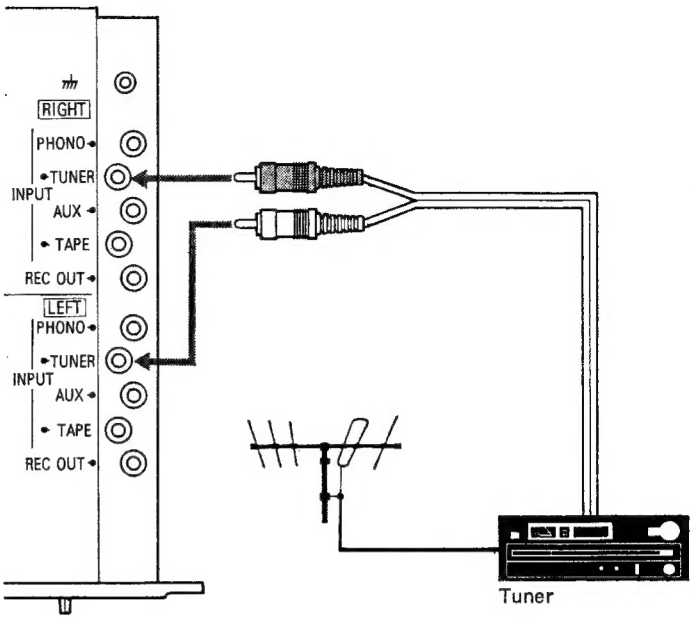


Record player

	Input sensitivity	Input impedance	Input capacitance
PHONO	2.5mV	100kΩ、50kΩ、25kΩ	100pF
HEAD AMP	0.125mV	100Ω (40Ω position) 25Ω (3Ω position)	—

TUNER CONNECTION

Connect the tuner to the TUNER inputs.
Note that antenna installation and multipath interference problems are critical factors when listening to FM broadcasts. After the connection is completed, you can begin listening to FM broadcasts in accordance with the initial operating instructions on page 8.

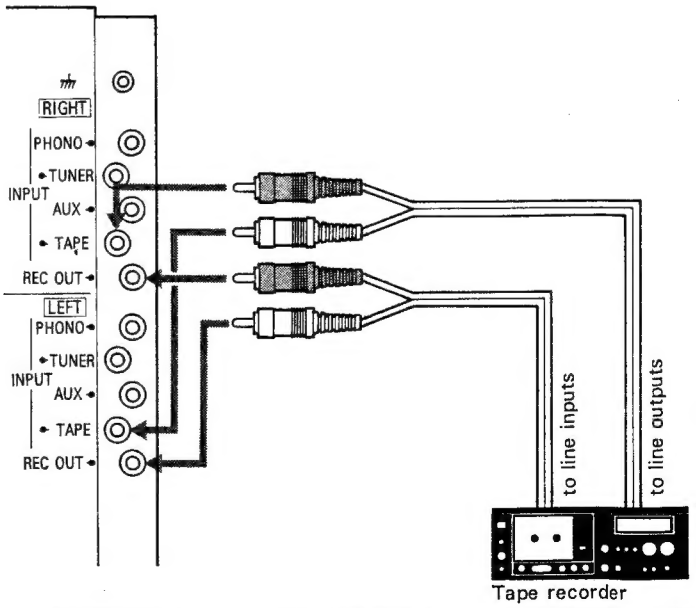


Tuner

	Input sensitivity	Input impedance
TUNER	150mV	50kΩ

TAPE RECORDER CONNECTION

For playback of the taped program, connect the tape recorder line outputs to the preamplifier TAPE inputs.
For tape recording, connect the tape recorder line inputs to the preamplifier REC OUT.



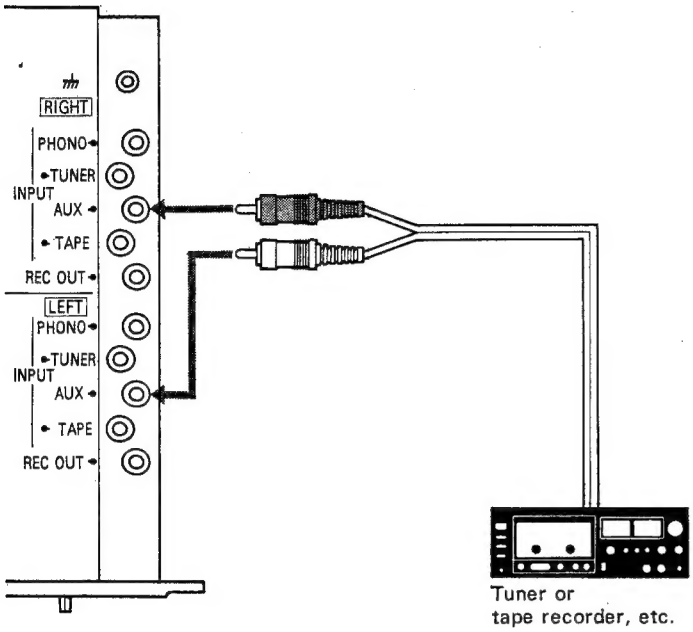
Tape recorder

	Input sensitivity	Input impedance
TAPE	150mV	50kΩ

	Output voltage	Output impedance
REC OUT	150mV	10kΩ

OTHER INPUT SOURCES

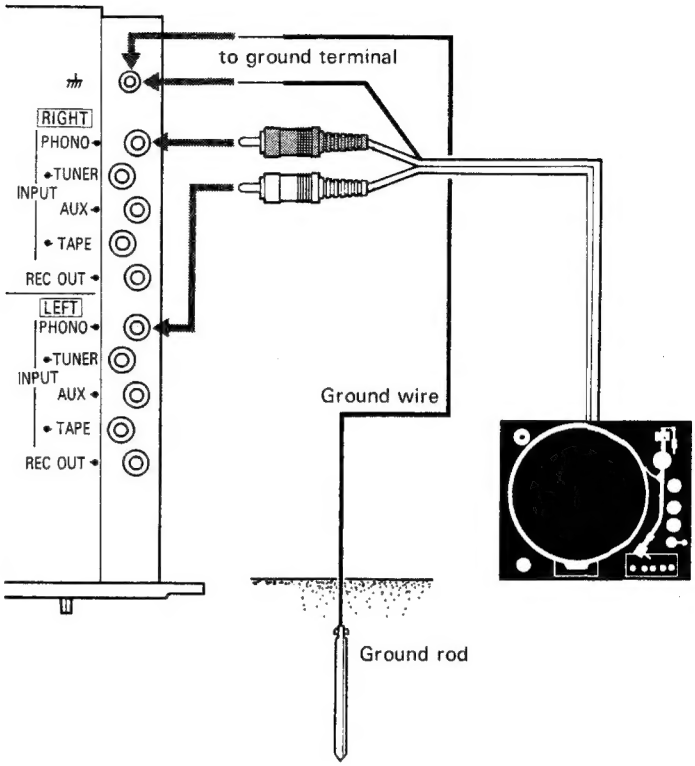
The AUX (auxiliary) inputs are provided for connecting various input sources such as an additional tape deck or tuner, etc. These inputs are identical to the TAPE or TUNER inputs in sensitivity and impedance.



	Input sensitivity	Input impedance
AUX	150mV	50kΩ

GROUND CONNECTION

To prevent hum, be sure to connect the ground wire of the record player to the amplifier ground terminal. If hum still exists, it may be helpful to connect the ground terminal directly to earth via a ground rod.



OPERATING INSTRUCTIONS

INITIAL OPERATION

As a preliminary to initial operation, check that the POWER switch is set to OFF and plug the preamplifier into a suitable power outlet.
Before proceeding to any type of operation, set the controls and switches as shown in the illustration "Basic control settings". The numbers refer to the sequence of operations.

❶ Set the ATTENUATOR volume control at minimum position (fully counterclockwise).
❷ Select the desired program source as required.

Selector / Program	MONITOR	FUNCTION	PHONO
FM/AM tuner	SOURCE	TUNER	—
Auxiliary source		AUX	—
Record playing		PHONO	100 kΩ, 50 kΩ 25 kΩ
			HEAD AMP 40Ω, 3Ω
Taped program	TAPE	any	

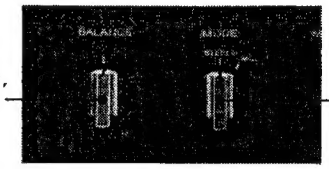
❸ Depress the POWER switch to ON. The pilot lamp will light. The TA-E86B employs a muting circuit which provides several seconds delay after switch-on to avoid any annoying "thump" noises when the unit is first turned on.

Your preamplifier is now ready for operation, and you can proceed with the sound adjustments.

SOUND ADJUSTMENTS

Sound Volume
Adjust the ATTENUATOR volume control to the desired level by turning it, with power amplifier and speaker power ratings in mind.

Stereo Balance
The feeling of direction and depth that stereophonic sound produces is greatly diminished if the levels of both channels are not balanced. Set the MODE selector to "MONO" and adjust the BALANCE control for equal output from the right and left speakers. Balance variations with different program sources are due to differences in the recording levels. Stereo balance is also influenced by the acoustics of the room. Carpets, furniture placement, and room size and shape have a definite effect upon sound quality and balance.



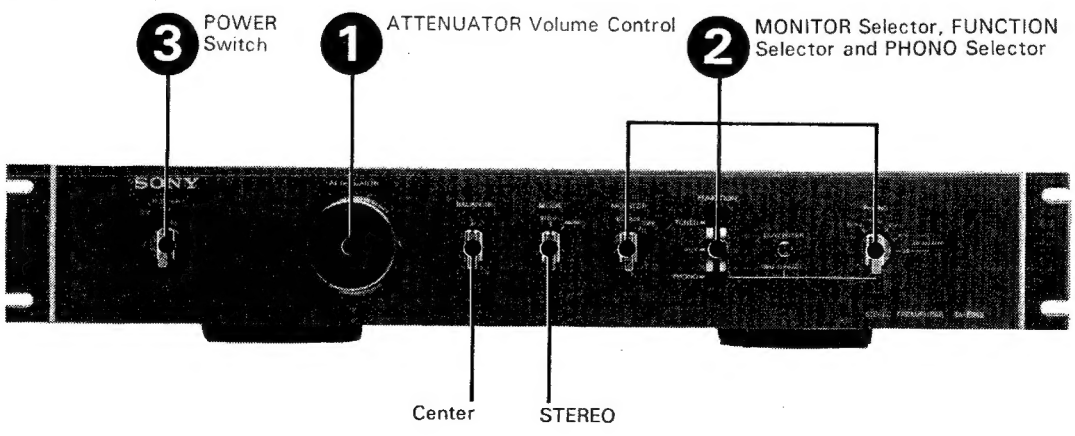
Tone
The TA-E86B, based on the "simple-is-best" circuit design concept, excludes the tone control and other add-on accessory circuits which could adversely affect the tonal response in the amplifier signal chain, and establishes a high order of performance.

TAPE RECORDING

❶ Set the MONITOR selector to SOURCE.
❷ Select the recording program with the FUNCTION selectors.
❸ Adjust the recording level at the recorder and start it in record mode.
• The ATTENUATOR volume and BALANCE controls, LOW FILTER switch and MODE selector have no effect upon the recording.

Monitoring of 3-head tape recorder
If your tape recorder has separate record and playback heads, you can monitor the recording results by setting the MONITOR selector to TAPE position.
In this case, the recorder should be connected to the TAPE and REC OUT jacks and its tape monitor should be at the TAPE position.

Basic control settings



FRONT PANEL FACILITIES

This section illustrates each facility available on the front panel of the TA-E86B, and describes its operation and function. Each number in the illustration is keyed to the descriptive text.

❶ POWER Switch

Turns the operating power on or off.
The built-in pilot lamp will light with a soft green glow when the preamplifier is turned on.

❷ ATTENUATOR Volume Control

This continuously variable attenuator controls the overall sound level.
Note that "0" indication (the fully clockwise position) means that the volume control provides zero attenuation (full gain amplification), and that "∞" indication (the fully counterclockwise position) means that the volume control provides no gain amplification. Adjust the volume to the preferred level. To prevent inadvertent speaker damage, lower the volume each time you turn on or shut down the system.

❸ BALANCE Control

Regulates the level of either the left or right channel to get optimum stereo effect.
For normal operation, set the BALANCE control to the center position.

❹ MODE Selector

Determines the mode of the program reproduced at OUTPUT 1 and 2. This selector has no effect upon the REC OUT.

MODE selector setting	Input Output	Use
STEREO	L → L R → R	Normal stereo sound
MONO	L ↘↗ L R ↗↘ R	Mono sound Speaker phasing check Stereo balance check

❺ PHONO Selector

Select the desired position, according to the record player connected and phono cartridge type used.
100 kΩ, 50 kΩ, 25 kΩ: For record playing with moving magnet cartridges. Select the position according to the recommended cartridge impedance. For normal use of MM type cartridge set this selector the 50 kΩ position.
The audiophile is also able to enjoy different sound nuance by intentionally changing the cartridge loads.
The phono input sensitivity is 2.5 mV and its capacitance is 100 picofarads.
HEAD AMP 40 Ω, 3 Ω: Suitable for a record player with low-level moving-coil cartridges because of the extra amplification of the included internal head amplifier.
40 Ω position: for cartridges having an impedance of about 40 ohms.
3 Ω position: for cartridges having an impedance of about 3 ohms.

❻ LOW FILTER Switch

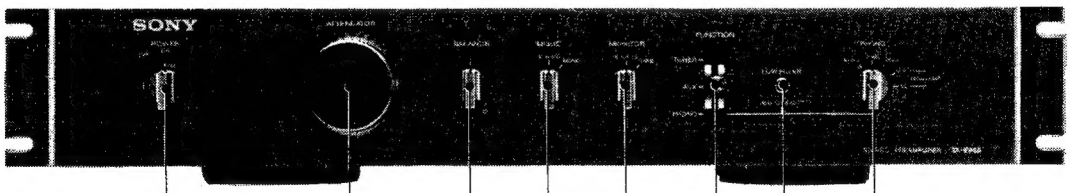
If subsonic record-warp frequencies are present from the turntable, the audible range frequencies may be modulated and cause irritating intermodulation (IM) distortion. This subsonic filter, taking effect below 15 Hz with a 12-dB-per-octave slope, is ideal for eliminating such a possible cause of intermodulation distortion without affecting the audible range frequencies, and also prevents speaker damage caused by inadvertent dc content signal flow. This feature is also useful in reducing possible howling effects which may occur when the record player and speaker systems are too close to each other.
● This filter circuit is inserted only in the phono-signal path, and has no effect upon program sources other than the PHONO inputs.

❼ FUNCTION Selector

Selects the desired program source other than the taped program.
TUNER: For off-air programs (connected to TUNER inputs).
AUX: For auxiliary programs (connected to AUX inputs).
PHONO: For disc programs (connected to PHONO inputs).
Use the PHONO selector according to the phono cartridge type used.

❽ MONITOR Selector

Selects either the playback output from a tape recorder, or program sources other than the taped programs.
SOURCE: For such progrm sources as a record player, tuner, or auxiliary source.
TAPE: For playback of a tape recorder with line outputs connected to the TAPE inputs.



❶POWER Switch
❷ATTENUATOR Volume Control
❸BALANCE Control
❹MODE Selector
❺PHONO Selector
❻LOW FILTER Switch
❼FUNCTION Selector
❽MONITOR Selector

CARE OF YOUR PREAMPLIFIER

TROUBLE CHECKS

The following chart will help correct most troubles which may occur with the unit. If the trouble persists after you have made these checks, consult your Sony service facility.
Before going through the check list of specified troubles below, first refer back to the "CONNECTION DIAGRAM" on page 4 and "INITIAL OPERATION" on page 8.

No audio and the pilot lamp not lit
Check that the ac power cord is plugged into a working outlet.

No audio but the pilot lamp lights
Check speaker cord connections.
Set the MONITOR selector to SOURCE for program sources other than TAPE inputs.
Check the setting of the FUNCTION selector.
Turn up the volume.

Unbalanced left and right volume
Adjust the BALANCE control.
Check the level or balance controls or the signal source.

No tape recording
Check that the FUNCTION and MONITOR selectors are set correctly.

Reversed left and right sound
Check the MODE selector.
Check the speaker cord connection and speaker location.

Distorted sound when volume is increased.
Power handling capacity of the connected speaker may be low.

Severe hum or noise
Use the shielded connecting cord.
Keep the connecting cord away from transformers or motors and at least 3 meters (10 feet) from TV sets and fluorescent light. Ground the TA-E86B.

Rustling noise
Make secure connections.
Wipe the plugs and jacks with a cloth lightly dampened with methanol.

CLEANING

Clean the cabinet, panel and knobs periodically with a soft cloth. If finger prints, food and beverage stains, etc. are difficult to remove, use a cloth moistened with a mild detergent solution. Do not use any type of scouring powder, abrasive pad or solvent, since these will damage the cabinet.

SPECIFICATIONS

Inputs

	Sensitivity	Impedance	Capacitance
PHONO	2.5 mV	100 k, 50 k, 25 k ohms	100 pF
PHONO (HEAD AMP)	0.125 mV	100 ohms (at the 40Ω position) 25 ohms (at the 3Ω position)	—
TUNER	150 mV	50 k ohms	—
AUX			
TAPE			

	Maximum input capability (1 kHz)	S/N (weighting network, input level)
PHONO	250 mV	87 dB (A, 2.5 mV)
PHONO (HEAD AMP)	12.5 mV	78 dB (A, 0.2 mV)
TUNER	—	105 dB (A, 150 mV)
AUX		
TAPE		

Outputs

	Voltage	Impedance
REC OUT	150 mV (max. 13 V)	10 k ohms
OUTPUT 1	1.5 V (max. 13 V)	100 ohms
OUTPUT 2	1.5 V (max. 13 V)	100 ohms

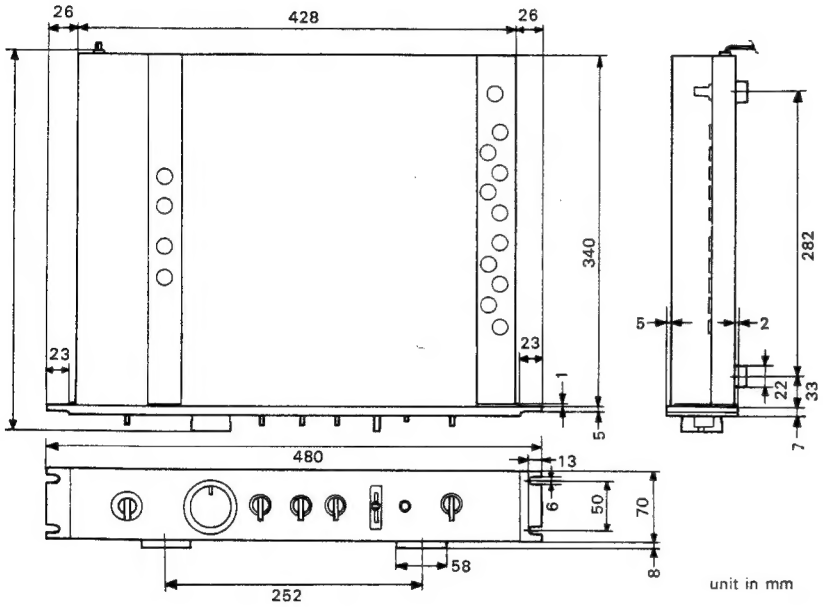
Harmonic distortion Less than 0.003% at 10 V output
Intermodulation (IM) distortion (60 Hz : 7 kHz=4 : 1)
Less than 0.003% at 10 V output
Frequency response PHONO RIAA equalization curve ±0.2 dB
TUNER, TAPE, AUX: 5 Hz–500 kHz $^{+0}_{-1}$ dB
Filter Low, 12 dB/octave attenuation below 15 Hz
Residual noise Less than 6 μV (A weighting network, IHF)
Bass boost (OUTPUT 2)
+6 dB (at 120 Hz)

General

System
Low-noise head amplifier
NF type dc equalizer amplifier
DC flat amplifier
Two regulated power supplies (for head amp and preamp) for each channel
Semiconductors 22 FETs, 90 transistors, 20 diodes
Power requirements 110, 120, 220 or 240 V ac
adjustable only by Sony service facility
50/60 Hz
Power consumption 15 watts
Demensions Approx. 480×80×370 mm (w/h/d)
(19×3 1/8×14 1/2 inches)
including projecting parts and controls
Weight Approx. 8.2 kg (18 lbs 1 oz) net
Approx. 10 kg (22 lbs 1 oz)
in shipping carton

Supplied accessories AC power cord (1)
Low-capacitance connecting cord (1)
Dust-proof caps (14)

While the information given is true at the time of printing, small production changes in the course of your company's policy of improvement through research and design might not necessarily be indicated in the specifications.
We would ask you to check with your appointed Sony dealer if clarification on any point is required.



Français

Le préamplificateur TA-E86B offre des performances d'ordre supérieur, il est équipé de circuits simplifiés et ses connexions sont d'une grande simplicité.

Caractéristiques

L'amplificateur de tête comprend un amplificateur différentiel à transistor LEC* II au premier étage. Un transistor LEC II à bruit extrêmement réduit de conception toute nouvelle est l'équivalent de dix transistors LEC conventionnels. Ceci permet un rapport signal sur bruit très élevé et des caractéristiques de distorsion supérieures.

Chacun des amplificateurs d'égalisation et amplificateur à réponse en fréquence plate utilise un amplificateur CC différentiel, et comme l'on utilise des paires correspondantes de transistors, on obtient des caractéristiques de températures bien meilleures. Un couplage direct est utilisé dans la boucle de rétroaction acoustique et il n'y a pas de condensateur de couplage qui pourraient diminuer la qualité sonore.

Chacun des circuits des canaux droit et gauche est agencé individuellement, ce qui donne une excellente séparation des canaux.

Le TA-E86B utilise une ligne de terre omnibus en cuivre pour maintenir la ligne de terre au potentiel presque égal, ce qui permet la réduction de l'entreaction dans un canal ou entre deux canaux.

Sony a incorporé des commandes de type atténuateur pour le volume et l'équilibre sonores du TA-E86B, ce qui produit d'excellentes intermodulations, réponses en impulsions et caractéristiques de distorsion. Ces réglages fournissent une sensation opérationnelle extrêmement douce.

Tous les éléments ont été choisis pour correspondre étroitement les uns aux autres. Les composants actifs, les transistors par exemple, ont été sélectionnés pour la similitude des caractéristiques dynamiques.

Le TA-E86B est le préamplificateur idéal des véritables audiophiles, excluant toutes les caractéristiques du panneau avant des préamplificateurs conventionnels.

*LEC (Low Emitter Concentration) signifie faible concentration d'émetteur.

TABLE DES MATIERES